

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



A464.02  
R312

UNITED STATES  
DEPARTMENT OF AGRICULTURE  
LIBRARY



BOOK NUMBER

A464.02  
R312

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Field Crops Research Branch

[NOT FOR PUBLICATION]<sup>1/</sup>

HELMINTHOSPORIUM TURCICUM, and H. MAYDIS LEAF BLIGHT  
RATINGS ON CORN AT PLANT INDUSTRY STATION  
BELTSVILLE, MD.  
1954

Alice L. Robert, Merle T. Jenkins,  
and William R. Findley, Jr.<sup>2/</sup>

The leaf blight experiments conducted at Plant Industry Station in 1954 involved six groups of material--one of inbred lines, one of double crosses, two of 3-way crosses, one of single crosses, and one of miscellaneous strains. All of these strains were tested for their reaction to the leaf blights caused by Helminthosporium turcicum and H. maydis under epidemics artificially produced by repeated inoculations. Data also were taken on root lodging and broken stalks.

Randomized block designs with two replications were used for all tests. Individual plots consisted of single rows of 25 hills with one plant per hill. Three-row blocks of blight susceptible strains were grown between paired ranges of plots to aid in spreading the diseases. The experiments were planted on May 22 to 26 except for the second replication of the test of double crosses which was planted on May 31, six days later than the first replication. A few double crosses were not included in the second replication of this experiment because of lack of space.

---

1/ This is a progress report of cooperative investigations containing data the interpretation of which may be modified with additional experimentation. Publication, display, or distribution of any data or any statements herein is prohibited without prior written approval of the Field Crops Research Branch, ARS, USDA, and the cooperating agency or agencies concerned.

2/ Associate Pathologist, Principal Agronomist and Associate Agronomist, respectively. The writers are indebted to D. E. Alexander, A. M. Brunson, C. R. Burnham, A. M. Elias, Brazil and C. H. Liden, Ecuador; P. H. Harvey, Edwin James, L. M. Josephson, R. W. Jugenheimer, J. H. Lonnquist, D. L. Matthews, J. Newcomer, W. R. Richardson, F. D. Richey, E. H. Rinke, E. C. Rossman, W. A. Russell, J. F. Shane, G. F. Sprague, Hugo Stoneberg, L. A. Tatum, A. J. Ullstrup, C. C. Wernham, and M. S. Zuber for seed of many of the strains included in these experiments.

---

Field Crops Research Branch  
Plant Industry Station  
Beltsville, Md.  
32700, January 1955



The Helminthosporium turcicum inoculum used for the 1954 inoculations was a mixture of 17 cultures isolated from leaf samples received from 16 different states. The cultures were increased separately on potato-dextrose agar in 100 mm. petri plates. They were homogenized in distilled water and mixed in approximately equal amounts for the concentrated stock inoculum. This was diluted just before application so that one culture plate yielded about 1.5 liters of the inoculum for field use. The H. maydis inoculum consisted of a mixture of 10 cultures from six states prepared and diluted in essentially the same manner. Inoculations were made as in previous years by placing about 10 ml. of inoculum in the leaf whorl of each plant. Seven inoculations were made with H. turcicum at three to four day intervals, the first being on June 22 and the last on July 13. Two inoculations were made with H. maydis on July 9 and 15.

Large numbers of H. turcicum lesions had appeared on susceptible plants by the first week in July and secondary spread was in progress by July 16. A hot, dry period caused the spread to proceed very slowly, however, until after the middle of August. The final infection was heavier than in most previous years even though its advancement was later than usual. H. maydis infection was only moderately heavy. Strain reactions to the two diseases were scored on the basis of the seven classes previously used, 0, 0.5, 1, 2, 3, 4, and 5, with class 0 representing no disease and class 5 representing very heavy infection.

The mean blight scores and mean lodging records on the six groups of strains tested in 1954 are reported in tables 1 to 6, inclusive. Table 1 contains the data on 159 inbred lines. Many of these lines have been tested in previous seasons and some of them have been highly resistant in every season in which they have been tested.

Table 2 contains the records on 62 double crosses. Forty-two of these are AES hybrids, candidates for AES designations, and standards sponsored by the North Central Corn Breeding Technical Committee. The remaining 20 entries are U. S. hybrids.

Data on 87 three-way crosses, six standards and 16 single crosses are reported in table 3. Entries 3101 to 3139, inclusive, were for the evaluation of blight resistant recoveries of several Corn Belt inbred lines. Entries 3140 to 3193, inclusive, are uniform tests of the 700 and 900 maturity series sponsored by the N. C. Corn Breeding Technical Committee. Entries 3194 through 3209 are single crosses among blight resistant recoveries for comparison with two standard Corn Belt singles.

Data on 3-way crosses and standards of 900 maturity are reported in table 4. Entries 4101 through 4157 consist of a uniform test of 3-way crosses sponsored by the N. C. Corn Breeding Technical Committee. The remaining 54 entries are 3-way crosses and top crosses of blight resistant recoveries and standards.

Table 5 contains the records on a uniform test of 45 single crosses ranging from 500 to 600 maturity sponsored by the N. C. Corn Breeding Technical Committee.

Table 6 includes 85 miscellaneous strains, many of which are of foreign origin.



Table 1. Leaf-blight ratings on 150 inbred lines following inoculation with Helminthosporium turcicum and P. maydis.

Entry	Pedigree	Mean leaf blight ratings				
		Total	Plants		H. turcicum	H. maydis
		plants	root	Broken	plants	plants
		No.	Pct.	Pct.	Score	Score
1102	G103	36	3	3	2.5	0.3
1103	G4199	44	0	2	0.5	2.0
1104	H547	43	0	2	1.5	0.5
1105	H548	22	3	5	0.5	0.8
1106	H609-1	25	28	0	1.5	0.8
1107	H856	43	0	2	0.5	1.0
1108	H875	30	0	3	1.5	0.5
1109	H898	45	0	0	0.8	1.0
1110	WHL016	34	15	0	0.5	1.5
1112	WHL130-1	27	0	0	1.3	0.3
1113	EL758	36	0	0	0.5	0.5
1114	Pd1976	26	0	8	0.5	1.5
1115	Pd2023-12	40	8	3	2.0	1.5
1116	Pd2029	37	0	3	0.5	2.5
1117	Pd2287-1	44	0	5	0.3	0.3
1118	Pd2237-2	40	0	0	0.5	0.5
1119	Pd2289	42	2	0	0.8	2.5
1120	Lg2446	30	30	0	0.3	1.0
1122	Lg2494-1	14	0	0	1.5	1.5
1123	Np3197-3	31	6	3	0.5	1.8
1124	Np3197-4	31	6	0	1.5	1.8
1125	Np3246	29	0	0	0.3	0.3
1126	B3473	16	0	6	0.3	0.3
1127	B3510	47	0	0	0.5	0.5
1128	Ba3226	34	15	0	2.0	0.5
1129	Ba3264	42	0	2	0.5	0.5
1130	WHL332	23	35	9	1.3	2.5
1132	WHL969	27	7	0	1.5	2.0
1133	WHL971	36	3	6	0.3	0
1134	GF259	23	4	9	0.5	1.0
1135	G4L434	16	0	0	0.5	1.3
1136	G4L440	34	15	0	0.5	0.3
1137	G4L467	46	0	4	0.3	0.5

Table 1. (Cont'd.)

Entry	Pedigree	Mean leaf blight ratings				
		'Plants'		'Total 'root 'Broken' H. turcicum' H. maydis		
		'plants' No.	'lodged' Pct.	'plants' Pct.	9/3 Score	9/6 Score
1138	GAL481	50	0	0	0.5	0.5
1139	KL2	27	4	0	0.5	0.5
1140	GT106	35	0	0	2.0	0.3
1142	GT112	35	0	0	3.0	0.8
1143	GT152	44	0	0	1.5	0.8
1144	GT169a	43	0	0	1.0	0.5
1145	(F23/ x Mo68b)-74-1	20	0	10	0.5	0.5
1146	3-162-1#5	41	2	0	0.5	0.8
1147	3-431-2-3	25	0	16	0.5	1.0
1148	3-431-2-3-2-B	30	0	3	0.5	2.0
1149	5-610-#1-1w	38	3	0	0.8	1.0
1150	5-655-1	28	14	4	2.0	0.8
1152	5-741-3-4	46	0	0	0.8	0.3
1153	Hy	44	0	9	5.0	0.8
1154	R35	5	0	0	2.5	0.8
1155	R39	47	0	2	1.3	1.5
1156	Tr	35	0	0	5.0	0.5
1157	WF9	35	0	0	4.5	3.5
1158	38-11	39	0	8	1.5	0.5
1159	L317	36	0	11	1.5	1.8
1160	Kys	41	0	0	2.0	1.0
1162	KL	37	0	14	1.5	2.0
1163	KL48	31	0	3	.8	2.0
1164	KL75	34	6	6	.5	.5
1165	Ky36-11	42	0	0	2.5	3.0
1166	Ky49	29	0	7	3.0	1.0
1167	Ky114	25	4	24	.8	.8
1168	Ky122	42	5	0	.5	2.5
1169	E97	33	0	3	.5	.5
1170	471	26	4	8	3.5	.8
1172	Mo21A	41	0	10	-	-
1173	33-16 x Mo21A <sup>5/</sup> (51:2177)	23	0	30	1.5	1.5
1174	K64 x Mo21A <sup>2/</sup> (51:2198)	42	0	7	.5	.8
1175	K64 x Mo21A <sup>5/</sup> (51:2215)	30	0	23	.8	.8
1176	H22 x Mo21A <sup>5/</sup> (51:2235)	35	0	0	.5	.5
1177	NCL8	36	0	8	1.5	.8

Table 1. (Cont'd.)

Entry	Pedigree	'Plants'		Main leaf blight ratings		
		'Total plants'	'root lodged'	'Broken' plants'	'H. turcicum' 2/3	'H. maydis' 9/6
		No.	Pct.	Pct.	Score	Score
1178	NC34	39	0	0	.5	2.0
1179	NC69	29	17	34	.5	.8
1180	Ohhc	42	0	0	.5	1.0
1182	Oh43	39	0	0	4.0	.3
1183	Oh428	31	0	0	1.5	.3
1184	Oh420	43	2	0	3.0	2.5
1185	T8	43	5	0	3.0	0.0
1186	TL3	35	3	3	.8	2.0
1187	T61	24	0	0	1.5	2.0
1188	T528	42	0	0	1.0	2.0
1189	CI.2	45	0	2	2.5	1.5
1190	CI.2B	34	0	3	.8	.5
1192	CI.14	18	0	0	1.0	.3
1193	CI.15	38	0	3	.5	.3
1194	CI.19	29	0	0	1.5	.8
1195	CI.20	28	14	7	2.0	1.5
1196	CI.23	20	0	0	0.5	2.5
1197	CI.27	40	0	0	3.0	.5
1198	CI.41	39	26	3	3.0	.5
1199	CI.46	40	3	0	1.0	2.0
1200	CI.Kys	35	0	3	.8	1.5
1202	CI.7A(4)-2-1	41	0	0	.8	2.0
1203	CI.7A(4)-4-1	39	0	0	1.0	1.0
1204	CI.294	42	5	0	.5	2.5
1205	CI.29B	35	0	3	.8	2.5
1206	CI.29C	42	7	0	.8	2.5
1207	CI.31	28	0	0	2.0	.8
1208	CI.38A(5)-1	36	0	0	.8	1.0
1209	CI.38A(5)-2	46	0	0	.5	2.0
1210	CI.38A(5)-3	45	0	2	1.5	.8
1212	CI.38B	44	0	2	1.0	2.5
1213	CI.42A	46	0	9	1.0	2.0
1214	CI.42B	48	0	19	.5	.8
1215	CI.42C	45	2	2	.5	1.5
1216	CI.49B	34	3	0	.8	2.0
1217	CI.64	42	2	0	.8	.5

Table 1. (Cont'd.)

Entry	Pedigree	Plants			Mean leaf blight ratings	
		Total 'plants'	'root lodged'	'Broken' plants'	H. turcicum	H. maydis
		No.	Pct.	Pct.	9/3 Score	9/6 Score
1218	CI.317A	36	0	6	0.5	1.5
1219	B1h	40	0	0	5.0	1.0
1220	B35	46	0	91	5.0	1.5
1222	B37	48	0	0	5.0	1.5
1223	B39	40	0	3	3.0	0.5
1224	B40	42	0	10	5.0	0.5
1225	A188	43	0	93	5.0	---
1226	A201	45	0	73	5.0	---
1227	Mo9150	45	0	0	4.0	.3
1228	Mo0221	31	0	3	2.5	1.5
1229	Mo1853	42	0	14	2.5	3.0
1230	Mo01930	45	0	2	3.0	2.5
1232	Mo01260	48	0	33	5.0	1.5
1233	Mo01268	50	0	12	4.5	1.5
1234	Mo9187W	40	0	10	2.5	1.0
1235	Mo1918	46	0	50	5.0	.8
1236	Mo21A rec. (51:2215)	37	3	0	.5	.5
1237	Miss.Hyd x Ky27 <sup>2</sup> / (52:1216)	44	0	2	.8	.5
1238	Miss.Hyd. x Ky27 (52:1219)	31	0	0	.8	.5
1239	Miss.Hyd. x T82/ (52:1231)	41	0	10	.8	1.0
1240	L97 x W22 <sup>2</sup> / (51:1054)	47	2	30	.5	.5
1242	T528 x A71 <sup>2</sup> / (51:1060)	45	5	0	1.5	.8
1243	Miss.Hyd. x M14 (52:1358)	42	2	10	.5	1.5
1244	" x " (52:1359-1)	41	2	10	1.5	1.0
1245	" x " (52:1359-2)	43	0	19	1.0	.5
1246	U.S. 599W (51:1851)	37	0	3	.3	.3
1247	" (51:1859)	50	18	4	.5	.8
1248	" (51:1862)	38	8	0	.5	1.0
1249	" (51:1877)	46	0	0	.5	3.0
1250	" (51:1880)	39	18	0	.5	.5
1252	(K64 x Mo22)(Boone Co. Wh.) (51:1882)	38	8	0	.3	1.5
1253	(K64 x Mo22)(Boone Co. Wh.) (51:1883)	39	44	10	.5	1.5
1254	(K64 x Mo22)(Boone Co. Wh.) (51:1884)	41	2	0	.8	.5

Entry	Pedigree	Plants			Mean leaf blight ratings	
		Total	root	Broken	H. turcicum	H. maydis
		plants	lodged	plants	9/3	9/6
		No.	Pct.	Pct.	Score	Score
1255	(K64 x Mo22)(Boone Co. Wh.)					
	(51:1898)	38	0	0	1.5	1.0
1256	" (Boone Co. Wh.)					
	(51:1903)	41	0	0	1.0	.8
1257	Boone Co. Wh. x Ky27 (51:2016)	40	5	0	1.5	1.0
1258	Midland x T8 (49:222)	45	2	0	2.5	0.5
1259	Mo22 x WF9 (49:120)	46	0	7	1.0	2.0
1260	" x " (49:145)	41	0	2	2.0	.3
1262	Mo22 x WF9 (49:127)	40	0	0	2.0	1.5
1263	N77 x CI.73 (49:1997)	44	0	2	4.0	.5
1264	201E	30	0	70	5.0	---
1265	202E	38	0	34	5.0	---
1266	301E	32	3	31	5.0	---
1267	302E	45	0	20	5.0	---
1268	304E	7	0	29	5.0	---
1269	401E	40	0	3	4.5	---
1270	501E	34	0	0	2.5	---
1272	502E	2	0	0	5.0	2.5
1273	503E	39	18	13	5.0	---
1274	601E	21	5	14	5.0	.5
1275	701E	32	0	3	4.0	2.0
1276	801E	4	0	0	1.5	2.0
1277	802E	44	0	5	3.0	2.5

Table 2. Leaf blight ratings on 42 AES hybrids, candidates for AES designations and standards, and on 20 U.S. hybrids following inoculations with Helminthosporium turcicum and H. maydis.

Entry	Hybrid designa- tion	Pedigree	500-600 Maturity Series					700 Maturity Series								
			No.	Pct.	Plants'	'Total 'Plants' lodged'	'Broken' 'Plants' 8/30	'H. maydis' 'H. turcicum' 9/7	Mean leaf blight ratings	No.	Pct.	Plants'	'Total 'Plants' lodged'	'Broken' 'Plants' 8/30	'H. maydis' 'H. turcicum' 9/7	Mean leaf blight ratings
2101	AES510	(WF9 x W22) (H19 x B9)														
2102	AES610	(M14 x A73) (Oh43 x Oh51A)	36	0	11		4.0	1.5								
2103	Il.1575	(M14 x WF9) (L12 x Oh28)	33	0	12		4.0	.5								
2104	Il.1800	(M14 x WF9) (A73 x A295)	37	0	3		3.0	1.5								
2105	Il.1863	(M14 x WF9) (I205 x Oh43)	36	0	17		4.0	1.5								
2106	Il.1902	(H138 x H142) (H139 x H141)	38	0	3		4.0	.8								
2107	Ind. Oh421	(WF9 x M14) (B9 x W22)	36	0	19		3.0	1.5								
2108	Iowa 4558	(WF9 x M14) (B2 x B8)	34	0	7		4.0	1.0								
2109	Minn.	(Oh51A x A286) (A73 x A101)	38	0	26		4.0	1.5								
2110	Minn.	(Oh51A x A375) (A286 x A295)	30	0	30		4.0	1.5								
2111	Ohio M15	(Oh51 x Oh26) (A x W23)	27	0	48		4.0	2.0								
2112	Ohio K24	(Oh51A x WF9) (Oh33 x Oh40B)	36	0	8		4.0	.5								
2113	Ohio 5305	(A73 x Oh5) (Oh51A x Oh26A)	39	0	28		4.0	1.0								
2114	Iowa 4630	(WF9 x Oh51A) (M14 x B21)	37	0	8		3.5	.8								
2115	AES 702	(WF9 x H42) (C103 x M14)	37	0	0		2.5	.5								
2116	Il. 1814	(H42 x WF9) (M14 x Oh45)	28	0	4		3.0	.8								
2117	Il. 1831	(WF9 x M14) (K237 x Oh45)	37	0	22		4.0	.8								
2118	Il. 1873	(C103 x M14) (R75 x Oh43)	40	0	5		2.5	.8								
2119	Ind. 1405	(H41 x H42) (H45 x H46)	29	0	10		3.0	2.5								
2120	Ind. 2401	(WF9 x M14) (K237 x Oh45)	37	0	24		4.5	.5								
2121	Iowa 4297	(WF9 x I205) (M14 x C1.187-2)	38	0	16		4.0	1.5								
2122	Ohio 3247	(Oh51A x W22) (Oh43 x Oh45)	41	0	10		4.0	.5								

	No.	Pct.	Score		No.	Pct.	Score
'Plants'							
Total 'root 'Broken' H. turcicum' H. maydis							
'plants' lodged 'plants'	8/30		9/7				
Mean leaf							

2123	AES 801	(WF9 x B7)(BL4 x BL0)	37	0	3	4.0	3.0
2124	AES 802	(WF9 x Fy)(N6 x 38-11)	36	0	3	4.0	3.0
2125	AES 803	(WF9 x GL.187-2)(N6 x KL48)	31	0	10	3.0	3.0
2126	AES 805	(WF9 x 38-11)(GL03 x OH45)	40	0	0	3.0	3.0
2127	AES 806	(WF9 x Fy)(N6 x NL5)	34	0	12	3.0	2.5
2128	ILL.1767	(Fy2 x OH45)(WF9 x 38-11)	38	0	5	3.0	2.0
2129	ILL.1813	(GL03 x OH45)(Fy2 x WF9)	37	0	3	2.5	3.0
2130	ILL.6021	(R75 x R76)(R84 x KL4)	38	5	16	3.5	2.0
2131	ILL.6075	(R75 x R83)(R78 x R87)	41	0	32	4.0	2.0
2132	Ind.2609	(WF9 x 38-11)(OH43 x HL4)	43	0	23	4.0	2.5
2133	Ind.9502	(R26 x H27)(H28 x H20)	43	0	7	4.0	2.0
2134	Toiva 4615	(WF9 x Fy)(BL4 x B36)	34	2	12	4.0	2.0
2135	Ohio 4808	(OH43 x OH51A)(OH28 x OH45)	43	3	19	2.5	2.0
2136	U. S. 13	(WF9 x 38-11)(Fy x L317)	34	0	38	4.0	2.0

[illegible]

Table 2. (Cont'd.)

	U. S. Hybrids					
		No.	Pct.	Pct.	Score	Mean leaf blight ratings
2143	U.S.594	39	3	0	1.5	0.3
2144	U.S.595	38	0	8	1.5	.5
2145	U.S.596W*	25	8	8	2.0	1.0
2146	U.S.597W*	25	0	12	.5	1.0
2147	U.S.598W*	23	0	9	.5	.5
2148	U.S.599W*					
	(K12 x G4152)(OHLG x NG69)					
	(CI.14 x CI.15)(CI.19 x CI.20)					
	(NG34 x 197)(Ky114 x CI.23)					
	(H548 x GE259)(Lg2323-2 x Lg2413)					
	(Pd2287-1 x Np3197-1)(B3372-3 x B3510)					
	(F23/x 38-11)-16-2 x Gal790-2) x					
	(3-162-1#4-Bx3-431-2-1-B)	34	0	24	.5	1.0
2149	U.S.600W*	25	0	16	.5	0
	(GAL434 x H548)(GAL440 x H547)					
2150	U.S.601W*	24	0	8	1.0	.5
2151	U.S.602W*	20	10	10	1.0	0
2152	U.S.603W*	41	5	0	1.5	.8
2153	U.S.604W*	23	4	22	2.0	0
2154	U.S.605W*	24	4	46	2.0	2.0
2155	U.S.606W*	33	3	3	1.5	.3
2156	U.S.607W*	25	4	24	2.0	.5
	(W1016 x W1130-1)(B3478 x B3510)					
	(EL758 x D3778)(Bal097 x MW4332)					
2157	U.S.608	40	3	23	2.5	1.5
	(CI.7 x CI.03)(CI.3A x CI.27)					
2158	U.S.609*	23	0	26	5.0	1.0
2159	U.S.610	44	0	0	1.5	.5
	(OHLG x CI.03)(CI.21 x CI.21E)					
2160	U.S.611*	20	0	0	.5	1.0
	(WF9R1 x 38-11R1)(OHLG x CI.03)					
2161	U.S.612*	25	4	32	2.0	1.0
	(WF9R1 x 38-11R1)(OHLG x B2Rec.)					
2162	U.S.613W	38	0	11	.8	.3
	(Mo214(H22) x L97)(Pd2287-2 x Pd2289)					

\* The data on these hybrids are from single plots in the first replication. They were not included in the second replication because of lack of space.



Table 3. Leaf blight ratings on 3-way crosses of 700 and 800 maturities and standards following inoculations with Helminthosporium turcicum and H. maydis

Entry	Pedigree	Mean leaf blight ratings				
		'Plants'				
		'Total	'root	'Broken	'H. turcicum'	'H. maydis'
		'plants	'lodged'	'plants'	8/27	9/7
		No.	Pct.	Pct.	Score	Score
<u>Inbred lines crossed on WF9 x 38-11</u>						
3101	Hy	48	0	27	4.0	2.0
3102	CI.42A	49	0	16	2.0	1.5
3103	CI.42B	50	0	6	2.0	1.5
3104	CI.42C	49	0	8	1.5	2.5
3105	Hy(Mo21A)Bx1-S6 AJUL3700	48	4	4	1.5	2.5
3106	Hy(Mo21A)Bx2-S4 AJUL3706	50	0	26	3.0	2.0
3107	Hy(Mo21A)Bx2-S4 AJUL3711	47	2	17	3.0	1.0
3108	L317	49	0	22	3.0	1.5
3109	CI.317A	46	0	22	2.0	1.0
3110	CI.317B	49	0	14	2.0	1.5
3111	(L317 x L97)-B-#3-S4	49	2	14	3.0	2.0
3112	( " " ) " -S6	43	5	16	1.5	1.5
3113	( " " ) " -S9	48	6	10	1.5	1.0
3114	( " " ) " -S10	47	0	21	1.5	.8
3115	L317(Mo21A)Bx1-S6 AJUL3676	48	0	31	2.5	.8
3116	L317(Mo21A)Bx1-S6 AJUL3683	48	0	29	2.5	1.5
3117	L317(Mo21A)Bx2-S4 AJUL3688-8	45	0	22	3.0	1.5
3118	L317(Mo21A)Bx2-S4 AJUL3688-13	48	0	19	2.5	2.0
3119	Osl420	46	0	38	5.0	1.0
3120	(Osl420 x NC34)-B-#4-S2-1	48	0	8	2.0	.8
3121	( " " ) -S9-(x)	49	0	8	2.0	.3
3122	( " " ) -S12-(x)	48	0	6	2.0	1.5

Inbred lines crossed on Hy x L317

3123	WF9	44	0	18	4.0	3.0
3124	CI.29A	47	0	34	3.0	3.0
3125	CI.29B	46	2	28	2.0	2.0
3126	CI.29C	49	2	22	2.0	3.0
3127	(WF9 x NC34)-B-#3-S8-3-1	46	0	15	1.5	3.0
3128	( " " ) -S10-1-1	46	0	15	2.0	2.5
3129	38-11	50	2	20	4.0	1.5
3130	CI.38A	48	0	17	2.5	1.0
3131	CI.38B	47	0	19	1.0	2.0
3132	(38-11 x NC34)-B-#3-S2-1-2-(x)	45	7	24	2.0	1.5
3133	( " " ) -S4-2-1	48	4	2	2.0	1.5
3134	( " " ) -S7-1-1	44	0	23	1.5	1.5
3135	38-11(Mo21A)Bx1-S6 AJUL3734	44	2	9	1.0	2.0
3136	" " " -S2-#3-S1 AJUL3755	45	0	44	.3	.5

Table 3. (Cont'd.)

Entry	Pedigree	Plants		Mean leaf	
		Total	Broken	blight ratings	
		'plants'	'plants'	'H.turcicum'	'H.maydis'
		No.	Pct.	8/27	9/7
				Score	Score

Standards

3137	WF9 x 38-11	50	2	6	5.0	.8
3138	Hy x L317	47	0	45	3.5	.8
3139	U.S. 13	47	0	11	5.0	3.0

North Central Uniform 3-Ways, 800 Maturity

3140	(WF9 x Hy2)	x R95	48	0	40	5.0	1.5
3141	"	x R96	48	0	40	4.5	3.0
3142	"	x R98	47	0	9	3.5	1.5
3143	"	x R101	46	0	22	5.0	3.0
3144	"	x N5	45	0	33	4.5	1.5
3145	"	x N12	48	0	23	5.0	2.0
3146	"	x N13	46	0	2	3.0	2.5
3147	"	x K1605 (Nebr.)	48	4	40	5.0	2.0
3148	"	x B36	49	0	33	4.5	1.5
3149	"	x Oh451	47	0	15	4.5	.8
3150	"	x 38-11	47	0	34	4.5	.8
3151	"	x L317	47	0	9	4.0	1.8
3152	(WF9 x 38-11)	x R95	47	0	13	4.5	2.5
3153	"	x R96	47	0	32	5.0	3.0
3154	"	x R98	49	0	22	3.5	2.5
3155	"	x R101	46	0	50	5.0	3.0
3156	"	x N5	49	0	16	4.5	1.5
3157	"	x N12	48	0	15	5.0	2.5
3158	"	x N13	44	0	5	3.0	3.5
3159	"	x K1605	50	0	14	5.0	.8
3160	"	x L317	45	0	9	3.0	2.0
3161	"	x Hy	46	0	28	3.5	2.5
3162	U.S. 13(WF9 x 38-11)(Hy x L317)		47	2	19	3.5	3.0

North Central Uniform 3-Ways, 700 Maturity

3163	(B14 x WF9)	x G103	49	0	0	2.5	0.5
3164	"	x M14	46	0	9	4.5	1.5
3165	"	x B37	46	0	2	5.0	1.0
3166	"	x B38	45	0	9	4.5	1.5
3167	"	x A73	48	0	65	5.0	1.0
3168	"	x K1603	49	0	14	4.5	3.0
3169	"	x N18	47	0	26	5.0	1.3
3170	"	x Nebr. 4535	49	0	22	5.0	.5
3171	"	x Nebr. 9206	48	0	21	5.0	.5
3172	"	x Oh5	50	0	28	4.5	.5

Table 3. (Cont'd.)

Entry	Pedigree	Plants			Mean leaf blight ratings	
		Total	root	Broken	'H. turcicum'	'H. maydis'
		plants	'lodged'	plants	8/27	9/7
		No.	Pct.	Pct.	Score	Score
<u>North Central Uniform 3-Ways, 700 Maturity</u>						
3173	(B14 x WF9) x Oh26A	49	0	6	5.0	2.0
3174	" x Oh28	47	0	26	4.0	1.0
3175	" x Oh43	46	0	15	3.0	1.8
3176	" x Oh22	43	0	2	3.0	2.0
3177	" x W70	48	2	33	5.0	1.8
3178	(Oh28 x Oh43) x CI.03	48	0	4	3.0	.5
3179	" x ML4	49	2	22	3.0	.5
3180	" x WF9	47	0	23	4.5	.5
3181	" x B37	45	2	4	3.0	.8
3182	" x B38	46	0	11	3.5	.5
3183	" x A73	48	0	54	5.0	.5
3184	" x KL603	47	0	30	4.5	.3
3185	" x ML8	48	4	15	4.5	.5
3186	" x Nebr. 4056	47	0	38	5.0	.5
3187	" x Nebr. 4535	48	0	21	3.5	.5
3188	" x Nebr. 9206	48	4	38	5.0	.5
3189	" x Oh5	47	0	23	3.5	.5
3190	" x Oh26A	42	0	29	4.0	.5
3191	" x W70	49	0	51	4.5	.5
3192	(Oh28 x Oh43)(B14 x WF9)	48	0	17	3.5	1.0
3193	Ia.4297(WF9 x I205)(ML4 x CI.187-2)	48	0	31	5.0	2.0
<u>Single Crosses Among Blight Resistant Recoveries</u>						
3194	WF9 x 38-11	50	0	54	4.5	.8
3195	CI.29A x CI.38A	47	9	19	1.0	1.3
3196	" x 38-11R3	47	13	13	.5	1.0
3197	" x 38-11R4	47	26	6	.8	1.0
3198	" x 38-11R5	49	16	12	.5	1.5
3199	CI.38A x CI.29B	49	20	24	.8	.8
3200	CI.29B x 38-11R3	49	14	4	.8	.8
3201	" x 38-11R4	49	27	8	.5	.5
3202	38-11R5 x CI.29B	47	4	26	.5	.8
3203	Hy x L317	49	0	20	3.0	2.5
3204	CI.42A x CI.317A	50	0	30	.5	0
3205	" x CI.317B	48	0	31	.5	.8
3206	" x B2R1	48	2	6	.8	0
3207	CI.317A x CI.42C	50	0	18	1.0	1.0
3208	CI.317B x "	49	2	12	.5	2.0
3209	B2R1 x "	49	2	4	1.0	0.3

Table 4. Leaf-blight ratings on 3-way crosses, top crosses and standards of 900 maturity following inoculation with Helminthosporium turcicum and H. maydis.

Entry	Pedigree	Mean leaf blight ratings				
		'Plants'			blight ratings	
		'Total	'root	'Broken'	'H. turcicum'	'H. maydis'
		'plants'	'lodged'	'plants'	8/27	9/7
		No.	Pct.	Pct.	Score	Score
North Central Uniform Three-ways, 900 Maturity						
4101	(K201 x 38-11) x B1A	47	0	11	3.5	0.3
4102	" x CI.7	46	0	4	3.5	.3
4103	" x CI.7A	49	0	8	3.0	.3
4104	" x CI.31	47	0	13	3.0	.3
4105	" x Ok.11	46	0	11	3.0	.3
4106	" x Ok.15	46	0	11	3.5	0.0
4107	" x Ok.19	46	0	15	4.0	0.0
4108	" x Ok.22	49	0	8	4.0	.3
4109	" x Ok.12	48	0	13	2.5	.5
4110	" x B18	44	5	9	2.5	.5
4111	" x Kys	48	0	17	3.5	0.0
4112	" x Oh401	47	0	26	3.0	.5
4113	" x Oh443	44	0	16	3.0	0.0
4114	" x K4	45	0	20	3.0	.5
4115	" x CI.21E	44	0	9	3.0	.5
4116	" x N47904	46	0	7	3.0	.3
4117	" x N47556	49	0	4	3.5	.8
4118	" x Ky36-11	41	0	2	2.5	.5
4119	" x Ky126	46	0	0	4.0	.3
4120	" x Ky118	47	0	0	3.0	.3
4121	" x Ky120	47	0	2	3.0	.3
4122	" x Ky52:130	44	0	0	3.5	.5
4123	" x Ky52:132	47	0	6	3.0	.3
4124	" x Ky52:134	45	0	0	3.0	.3
4125	" x Ky52:136	46	7	7	2.5	.3
4126	" x Ky52:138	48	0	6	3.0	.3
4127	" x Ky52:140	42	0	0	3.5	1.0
4128	" x N5	45	0	11	3.0	.8
4129	" x N9	43	0	28	4.0	.3
4130	" x N10	46	--	--	3.5	.5

Table 4. (Cont'd.)

Entry	Pedigree	Mean leaf blight ratings				
		Plant				
		Total plants	root lodged	Broken plants	H. turcicum 8/27	H. maydis 9/7
		No.	Pct.	Pct.	Score	Score
h131	(K201 x 38-11) x N15	h4	0	14	3.5	1.5
h132	" x N47587-9	h8	2	6	2.5	1.5
h133	" x N82481	h5	0	4	2.5	.3
h134	" x Kans.52:1326	h7	0	2	3.0	.3
h135	" x Kans.52:1349	h7	0	26	3.5	.8
h136	" x Kans.52:1351	h8	0	13	3.5	.5
h137	" x Kans.52:1357	h7	0	19	3.5	.5
h138	" x Kans.52:1363	h3	0	7	4.5	1.5
h139	" x Kans.52:1367	h7	0	0	3.5	1.0
h140	" x Kans.52:1385	h7	h	6	3.0	.5
h141	" x Kans.52:1391	h4	0	16	2.5	.3
h142	" x Kans.52:1394	h8	0	6	2.5	.5
h143	" x Kans.52:1409	h4	2	5	3.0	0.0
h144	" x Kans.52:1411	h9	0	10	3.0	.3
h145	" x Kans.52:1412	h2	0	12	3.5	.8
h146	" x Kans.52:1421	h8	0	8	3.0	0.0
h147	" x Kans.52:1430	h6	0	4	2.5	.5
h148	" x Kans.52:1493	h2	0	0	2.5	.3
h149	" x Kans.50:1109	h4	0	0	2.5	.3
h150	(K201R x 38-11) x K4	h5	0	11	3.0	.3
h151	" x CI.21E	h4	0	16	4.0	.5
h152	" x CI.7	h7	0	4	3.5	.3
h153	" x Ky36-11	h5	0	2	2.5	.3
h154	" x Kys	h6	0	4	3.0	0.0
h155	(K201 x 38-11) x Oh7B	h9	2	8	4.5	1.0
h156	" x Ky106	h5	0	0	2.5	.5
h157	K1830(K201 x 38-11)(K4 x CI.7)	h8	0	17	3.0	.5
<u>Three-way Crosses on CI.21E x Kys</u>						
h158	CI.2	h5	0	11	3.0	2.5
h159	CI.27	h7	0	11	2.5	0.0
h160	T8	h7	2	4	3.5	.3
h161	(CI.2 x T8)S <sup>2</sup> -#3-S3-(x)	h7	0	2	2.5	.5
h162	" -S4-1	h9	4	12	2.5	.8
h163	" -S6-1	h8	0	8	2.0	.3
h164	" -S8-1-1	50	2	0	2.5	1.0
h165	CI.3	h4	0	27	3.5	2.0
h166	CI.3A	h8	0	13	3.0	1.5

Table 4. (Cont'd.)

Entry	Pedigree	Mean leaf blight ratings				
		'Plants'			'H. turcicum' 'H. maydis'	
		'Total plants'	'root lodged'	'Broken plants'	8/27	9/7
		No.	Pct.	Pct.	Score	Score
h167	(CI.3A x NC34)-B- <sup>3</sup> -S2-(x)	44	5	7	3.0	1.5
h168	" -S5-1	46	0	0	2.0	2.0
h169	CI.21E x Kys	46	2	11	3.0	1.5
<u>Three-way Crosses on TB x K155</u>						
h170	CI.21	46	0	2	3.0	.3
h171	(CI.21 x Mo21A)-B <sup>3</sup> - <sup>3</sup> -S1-(x)	44	2	0	2.0	.3
h172	" -S10-1	48	4	2	2.0	.3
h173	" -S11-(x)	46	2	2	2.5	0.0
h174	" -S13-(x)	46	0	0	2.5	.5
h175	TB x K155	41	2	0	3.0	0.0
<u>Three-way Crosses on 33-16 x K6</u>						
h176	K55	48	0	8	4.0	3.0
h177	K64	48	4	4	3.0	.5
h178	(K55 x NC34)-S1-93-(x)	47	2	13	3.0	1.5
h179	(K64 x NC34)-S1-9-(x)	44	2	5	3.0	.5
h180	" -S1-20-(x)	43	2	0	2.0	.8
h181	" -S2-118-1-4-(x)	48	0	4	2.0	1.0
h182	" -S2-118-6-2-(x)	48	0	4	2.0	.8
h183	" -S3-5-(x)	45	0	2	3.0	.8
h184	" -19-1	48	6	0	3.0	1.5
h185	" -43-1	46	2	9	3.0	2.5
h186	" -45-(x)	46	0	0	3.0	2.5
h187	Ind. 750A	43	0	7	4.0	2.0
<u>Top Crosses on K2234</u>						
h188	(Ky27 x CI.62)-S1-2-2-2-1-1-1	45	0	0	3.0	.5
h189	" -2-1	45	0	7	2.0	.8
h190	" -3-(x)	42	0	0	2.5	.5
h191	" -4-(x)	48	0	6	3.0	.5
h192	" -S1-2-2-3-1-2-(x)	44	0	16	3.0	.5
h193	" -2-2-(x)	45	0	2	2.0	.8
h194	" -3-1-1	46	0	2	2.5	.3
h195	LanLhw	48	2	2	4.5	1.5
h196	33-16	47	0	11	4.0	1.0
h197	CI.61	44	0	0	3.0	2.5
h198	Mo9187W	47	4	0	3.0	2.0
h199	H25	46	2	4	3.0	3.0
h200	Ky27	46	0	22	2.0	1.5
h201	K2234	49	2	10	3.0	2.0

Table 5. Leaf blight ratings on 45 uniform single crosses of 500 to 600 maturity following inoculations with Helminthosporium turcicum and H. maydis.

Entry	Pedigree	Plants			Mean Leaf blight ratings	
		Total	root	Broken	H. turcicum	H. maydis
		plants	lodged	plants	8/28	9/7
		No.	Pct.	Pct.	Score	Score
5101	M14 x B14	44	0	7	3.0	1.5
5102	M14 x B21	49	0	29	3.5	1.5
5103	M14 x A223	49	0	8	4.0	.5
5104	B14 x B21	48	0	15	4.5	1.0
5105	B14 x A223	43	0	0	3.5	.5
5106	B21 x A223	46	0	2	3.0	.5
5107	A239 x M14	46	0	7	4.0	.5
5108	A239 x B14	48	0	2	5.0	.5
5109	A239 x B21	50	0	58	4.0	.5
5110	A239 x A223	47	4	6	3.5	.5
5111	A295 x M14	46	0	6	3.5	.5
5112	A295 x B14	44	0	0	3.0	1.5
5113	A295 x B21	48	0	19	3.0	.5
5114	A295 x A223	48	0	2	3.0	1.5
5115	A295 x A239	50	0	4	4.5	.3
5116	A297 x M14	47	0	26	4.0	.8
5117	A297 x B14	50	0	2	5.0	.3
5118	A297 x B21	49	0	53	5.0	.5
5119	A297 x A223	46	0	7	3.0	.8
5120	A297 x A239	45	0	40	5.0	.5
5121	A297 x A295	50	4	8	5.0	1.5
5122	A545 x M14	49	0	4	3.5	1.0
5123	A545 x B14	46	0	0	3.0	1.0
5124	A545 x B21	48	0	10	3.0	.5
5125	A545 x A223	47	0	15	4.0	.5
5126	A545 x A239	47	0	34	4.5	.5
5127	A545 x A295	47	0	6	4.5	.8
5128	A545 x A297	48	0	27	3.5	1.5
5129	Oh26A x M14	43	0	7	3.0	1.5
5130	Oh26A x B14	45	0	0	3.0	1.5
5131	Oh26A x B21	47	0	17	3.5	2.0
5132	Oh26A x A223	44	0	0	3.0	2.0
5133	Oh26A x A239	48	0	0	3.5	1.0

Table 5. (Cont'd.)

		'Plants'			Mean leaf blight ratings	
		'Total 'root 'plants'	'lodged'	'Broken 'plants'	'H. turcicum' 8/28	'H. maydis' 9/7
		No.	Pct.	Pct.	Score	Score
5134	Oh26A x A295	46	0	0	3.0	2.0
5135	Oh26A x A297	48	0	2	4.5	2.0
5136	Oh26A x A545	45	2	2	3.0	2.5
5137	W64A x M14	49	0	0	3.0	3.0
5138	W64A x B14	49	0	0	4.0	3.0
5139	W64A x B21	44	0	30	4.0	2.5
5140	W64A x A223	43	0	2	4.0	1.0
5141	W64A x A239	49	0	29	5.0	.8
5142	W64A x A295	50	0	4	3.5	1.0
5143	W64A x A297	46	0	24	4.5	3.0
5144	W64A x A545	50	0	4	3.0	3.0
5145	W64A x Oh26A	37	0	0	4.0	3.5



Table 6. Leaf-blight ratings on 86 entries of miscellaneous corn strains following inoculation with Helminthosporium turcicum and H. maydis.

Entry'	Pedigree	'Plants'				Mean leaf	
		'Total 'root 'Broken'H. turcicum'H. maydis 'plants' 'lodged' plants'		'blight ratings			
		No.	Pct.	Pct.	Score		
8101	N.S.Wales M16 (PI.198768)-1	39	0	0	1.5	0.0	
8102	" " -2	40	0	0	1.0	.3	
8103	" " -3	20	0	5	1.5	.5	
8104	N.S. Wales KEM (PI.198769)-1	39	0	3	3.0	.3	
8105	" 21 (PI.198771)-1	36	6	0	2.5	.3	
8106	" " -2	42	5	0	3.0	0.0	
8107	" " -5	43	0	0	3.0	0.0	
8108	" Y1 (PI.198773)-1	14	0	0	1.5	0.0	
8109	" " -2	9	0	0	2.0	0.0	
8110	" " -3	18	0	0	2.5	0.0	
8112	Brazil 57-163 (PI.200599)-1	46	0	2	.8	.3	
8113	" " -2	43	0	0	.5	.3	
8114	" " -3	48	0	2	.8	.3	
8115	Angola 1951-69 (S3)-1	24	0	4	.8	.3	
8116	Angola 195 -87 (S3)-1	26	0	15	1.0	2.5	
8117	Boulton No. 1 Ear 1-1	16	13	0	1.5	0.0	
8118	" No. 2 Ear 2-1	39	10	5	3.0	.3	
8119	" " -2	31	58	10	4.0	1.0	
8120	Cornelli #11, Ear 1-1	39	0	0	4.5	.3	
8121	" " -2	40	10	3	2.0	0.0	
8122	" " -3	49	10	4	2.5	.3	
8123	Cornelli #1, Ear 3-1	37	5	11	2.5	.8	
8124	" " -2	45	0	4	3.5	0.0	
8125	" " -3	37	5	3	3.0	0.0	
8126	" " -4	37	14	0	2.5	.3	
8127	" " -5	41	0	5	2.0	0.0	
8128	" " -6	38	0	3	3.5	0.0	

Table 6. (Cont'd.)

Entry	Pedigree		'Plants'		Mean leaf		
			No.	Pct.	Score	blight ratings	
			'Total 'root 'Broken' H. turgicum' H. maydis	'plants'lodged'plants'	8/27	9/7	
8129	Purple husked corn (A.L.Muffett)	-1	33	0	52	5.0	3.0
8130		-2	47	0	30	4.5	1.5
8131		-3	38	5	3	4.0	2.0
8132		-4	41	0	24	2.5	2.0
8133		-5	40	0	25	3.0	3.0
8134		-6	36	0	47	4.5	2.0
8135		-7	40	5	18	2.0	2.0
8136		-8	37	0	30	5.0	.5
8137		-9	27	0	4	4.5	3.0
8138		-10	25	0	24	4.0	2.5
8139		-11	31	0	48	5.0	2.0
8140		-12	35	0	0	2.0	2.0
8141	Dixie 22		47	0	11	4.0	2.0
8142	U.S. 605W		43	0	0	3.0	2.0
8143	U. S. 13		46	0	7	4.5	4.0
8144	Synthetic O.P.I., Early Selection		43	0	26	2.5	2.0
8145	" O.P.I., Intermediate Selection		46	0	9	1.5	2.0
8146	" O.P.I., Late Selection		44	0	9	3.0	2.0
8147	ECR - 1725		48	2	10	3.0	2.0
8148	ECR - 1726		38	5	8	3.0	1.0
8149	ECR - 1727		31	10	6	2.5	.5
8150	ECR - 1728		45	2	9	2.0	2.5
8151	ECR - 1729		44	2	11	5.0	.8
8152	A71 (x)53:X7G1660 (PI210412)		44	0	2	2.5	.8
8153	A22 (x) 53:X54A1-44 (PI210411)		39	0	15	2.0	.8
8154	Teko Yellow (PI210405)		45	0	4	2.0	.8
8155	No.36-2-A (PI214081)		46	2	4	2.0	0.0

Table 6. (Cont'd.)

Entry	Pedigree	No.	Pct.	Plants'	Pct.	Mean leaf	
						blight ratings	9/7
						'Total 'root 'Broken 'H. turcicum' H. maydis	
						'plants' lodged' plants' 8/27	
						Score	Score
8156	No. 37 (PI 211082) (Ecuador)	50	20	0	2.0	0.0	0.0
8157	No. 37-S (PI 211083) ( " )	46	20	26	3.0	0.0	0.0
8158	No. 40 (PI 211084) ( " )	46	7	2	1.0	0.0	0.0
8159	No. 40-1 Mixto (PI.211085) (Ecuador)	48	2	2	2.0	.5	.5
8160	Chinaudega #3000 (PI.211209) (Mexico)	48	0	4	3.0	0.5	0.5
8161	Corralente Viejauro #3001 (PI.211210) (Mexico)	49	2	2	3.0	.8	.8
8162	Negrito #2009 (PI.211211) (Mexico)	33	6	0	3.0	.8	.8
8163	Olotillo #3002 (PI.211212) ( " )	43	2	2	3.0	1.0	1.0
8164	Oloton #2099 (PI.211213) ( " )	44	0	2	2.5	.5	.5
8165	PD (MS) 6 (PI.211214) ( " )	45	4	0	2.5	.5	.5
8166	Venezuela No. 3 (PI.211215) ( " )	46	0	4	2.0	0.0	0.0
8167	Semiden (Brazil)	43	0	9	5.0	1.0	1.0
8168	Santa Fe No. 3 (Brazil)	45	0	33	5.0	.8	.8
8169	Pergamino No. 2 ( " )	48	0	20	5.0	.5	.5
8170	F. A. V. 355 ( " )	43	2	14	4.5	2.5	2.5
8171	51-129-1# (Angola)	30	13	3	2.5	2.0	2.0
8172	51-181-1# ( " )	37	35	5	3.0	.8	.8
8173	51-208-1# ( " )	35	17	0	.8	0.0	0.0
8174	51-234-1# ( " )	43	0	0	3.0	1.5	1.5
8175	51-279-2# ( " )	40	0	40	4.0	.5	.5
8176	51-381-1# ( " )	43	0	2	3.0	3.5	3.5
8177	51-482-2# ( " )	18	30	0	1.0	2.5	2.5
8178	51-691-2# ( " )	40	0	0	1.0	1.5	1.5
8179	51-162-4# ( " )	37	0	3	.5	.5	.5
8180	51-102-2# ( " )	7	0	14	3.5	3.0	3.0
8181	Anveld (South Africa)	47	4	9	4.0	2.5	2.5
8182	Hickory King ( " )	40	5	0	2.5	.8	.8
8183	Blanco Redundo ( " )	47	11	0	2.0	.8	.8
8184	Potchefstroom Pearl (South Africa)	40	8	0	2.0	.5	.5
8185	Boesman ( " )	42	5	26	5.0	2.5	2.5
8186	Sahara ( " )	44	5	0	2.0	.8	.8





